

Curriculum Version 1.0
B.Tech. EEE (Electrical Vehicle Technology)
(For AY2026-27 onwards)

| Credit distribution among baskets (Minimum credits to be earned = 160) | | |
|---|-------------------------------|---------------------|
| Sl. No. | Baskets | Credit Contribution |
| 1 | School Core | 59 |
| 2 | Program Core | 40 |
| 3 | Discipline Elective | 43 |
| | Common Electives Basket | 25 |
| | Specialized Elective Baskets* | 18 |
| 4 | Open Elective | 18 |
| | Total Credits | 160 |

| Specialized Elective Baskets* | | |
|--------------------------------------|------------------------------|----------------------------|
| Sl.No. | Name of the Basket | Minimum Credit Requirement |
| 1 | AI & ML | 3 |
| 2 | Signal Processing | 3 |
| 3 | Communication and Networking | 3 |
| 4 | VLSI and Embedded Systems | 3 |
| 5 | IoT | 3 |
| 6 | Robotics and Automation | 3 |
| | Total* | 18 |

** Remaining Credits, if any, to satisfy Specialized Elective Baskets credit requirement can be taken from any Specialized Elective Basket*

| Sl. No. | Course Code | Course Name | L | P | Credits |
|---|-------------|--|---|---|-----------|
| A.School Core - Minimum Credits to be earned from this basket = | | | | | 59 |
| 1 | CSE1037 | Programming in Python | 2 | 2 | 3 |
| 2 | CSE1018 | Object Oriented Programming with Java | 2 | 4 | 4 |
| 3 | CSE1017 | Programming in C and C++ | 2 | 4 | 4 |
| 4 | CSE2001 | Data Structures and Algorithms | 3 | 2 | 4 |
| 5 | MAT1014 | Linear Algebra and Calculus using Matlab | 3 | 2 | 4 |
| 6 | MAT1002 | Differential Equations and Transform Techniques | 3 | 0 | 3 |
| 7 | MAT1013 | Statistics and Probability | 2 | 2 | 3 |
| 8 | MAT1012 | Numerical Techniques | 2 | 2 | 3 |
| 9 | MGT1101 | Digital Entrepreneurship | 2 | 0 | 2 |
| 10 | BIT1002 | Basic Human Nutrition | 2 | 0 | 2 |
| 11 | ECE1008 | Innovation Project Using Arduino | 0 | 2 | 1 |
| 12 | ECE1009 | Innovation Project Using Raspberry Pi | 0 | 2 | 1 |
| 13 | ECE4001 | B.Tech. Capstone Project | - | - | 4 |
| 14 | ECE4002 | B.Tech. Internship | - | - | 6 |
| B. Electrical and Electronics Basket - Min. credits to be earned from this basket = | | | | | 4 |
| 1 | ECE1002 | Elements of Electronics Engineering | 3 | 2 | 4 |
| 2 | ECE1001 | Fundamentals of Electrical and Electronics Engineering | 3 | 2 | 4 |
| C.Modern Physics Basket - Min. credits to be earned from this basket = | | | | | 3 |
| 1 | PHY1001 | Physics of Opto-electronic devices | 2 | 2 | 3 |
| 2 | PHY1002 | Semiconductor Physics | 2 | 2 | 3 |
| D.English Basket - Min. credits to be earned from this basket = | | | | | 2 |
| 1 | ENG1001 | Foundational English | 0 | 2 | 1 |
| 2 | ENG1002 | Communicative English | 0 | 2 | 1 |
| 3 | ENG1003 | Professional English | 0 | 2 | 1 |
| E.Foreign Languages Basket - Min. credits to be earned from this basket = | | | | | 2 |
| 1 | FRE1002 | Communicative French | 0 | 2 | 1 |
| 2 | GER1002 | Communicative German | 0 | 2 | 1 |
| 3 | SPA1001 | Communicative Spanish | 0 | 2 | 1 |
| F. Behavioural Science Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket = | | | | | 2 |
| 1 | PSY1001 | Understanding Self for Effectiveness | 0 | 2 | 1 |
| 2 | PSY1002 | Dynamics of Human Behaviour | 0 | 2 | 1 |
| G.Soft skill Basket (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket = | | | | | 2 |
| 1 | SSK2002 | Being Corporate Ready | 0 | 2 | 1 |
| 2 | SSK3001 | Problem Solving through Aptitude | 0 | 2 | 1 |
| 3 | CSE3050 | Programming Skills for Employment | 0 | 2 | 1 |
| Non-Credit Pass/ Fail Type Courses | | | | | 0 |
| 1 | CHE1001 | Environmental Studies | 2 | 0 | 0 |
| 2 | CEA1001 | Co-/ Extra-curricular Activities | - | - | 0 |

| Program Core (All Courses in this basket are mandatory) - Minimum Credits to be earned from this basket = | | | | | 40 |
|--|---------|--|---|---|-----------|
| 1 | ECE2032 | Circuit Theory and control systems | 2 | 2 | 3 |
| 2 | ECE1006 | Digital Design and Modelling | 2 | 2 | 3 |
| 3 | ECE1007 | Microprocessors and Microcontrollers | 2 | 2 | 3 |
| 4 | ECE2040 | Electric Machines | 2 | 2 | 3 |
| 5 | ECE2034 | Analog Circuits | 2 | 2 | 3 |
| 6 | ECE1004 | Engineering Electromagnetics | 2 | 0 | 2 |
| 7 | ECE2041 | Electric Drives and Control | 2 | 2 | 3 |
| 8 | CSE1035 | Fundamentals of Artificial Intelligence and Machine Learning | 2 | 2 | 3 |
| 9 | ECE2042 | Electric Vehicle Technology | 2 | 2 | 3 |
| 10 | ECE2043 | Battery Management System | 3 | 0 | 3 |
| 11 | ECE2044 | Vehicle Dynamics and its Control | 2 | 2 | 3 |
| 12 | ECE2045 | Automotive Electronics | 2 | 2 | 3 |
| 13 | ECE2046 | Computer Aided Design | 0 | 2 | 1 |
| 14 | CSE2002 | Web Technology | 2 | 2 | 3 |
| 15 | CSE2015 | Source Code Management | 0 | 2 | 1 |
| Discipline Electives - Minimum Credits to be earned from both Common and Specialized elective baskets = | | | | | 43 |
| Common Electives Basket - Minimum Credits to be earned from this basket = | | | | | 25 |
| 1 | ECE2010 | Random Processes | 3 | 0 | 3 |
| 2 | ECE2047 | Renewable Energy Systems | 3 | 0 | 3 |
| 3 | ECE2048 | Measurement and Instrumentation | 2 | 2 | 3 |
| 4 | ECE2031 | Signals and Systems | 2 | 2 | 3 |
| 5 | ECE2011 | Optical Fiber Communication | 2 | 2 | 3 |
| 6 | ECE3004 | Microwave Integrated Circuits | 2 | 2 | 3 |
| 7 | ECE2012 | Microelectronic Systems | 2 | 2 | 3 |
| 8 | ECE2013 | Nano technology | 2 | 2 | 3 |
| 9 | ECE2014 | Smart devices - IoT | 2 | 2 | 3 |
| 10 | ECE2015 | Fundamentals of Electric Vehicle Technology | 2 | 2 | 3 |
| 11 | ECE3005 | Quantum Technology | 2 | 2 | 3 |
| 12 | ECE3006 | Mixed Signal Circuit Design | 2 | 2 | 3 |
| 13 | ECE3007 | Neuromorphic Computing | 2 | 2 | 3 |
| 14 | ECE1005 | Fundamentals of Electrical Engineering | 2 | 2 | 3 |
| 15 | ECE3008 | Universal Verification Methodology | 2 | 2 | 3 |
| 16 | ECE2016 | Power Electronics | 2 | 2 | 3 |
| 17 | ECE2017 | Semiconductor Fabrication | 3 | 0 | 3 |
| 18 | ECE2018 | Introduction to MEMS | 2 | 2 | 3 |
| 19 | ECE2019 | System Verilog | 2 | 2 | 3 |
| 20 | ECE2020 | Cyber Physical Systems | 3 | 0 | 3 |
| 21 | ECE2021 | Embedded System Design with FPGA | 2 | 2 | 3 |
| 22 | ECE3009 | Hardware Security | 2 | 2 | 3 |
| 23 | ECE2022 | Wearable Technology | 3 | 0 | 3 |
| 24 | ECE2023 | Digital Image Transformations | 2 | 2 | 3 |
| 25 | ECE3001 | Digital Signal Processing | 2 | 2 | 3 |

| | | | | | |
|---|---------|---|---|---|-----------|
| 26 | ECE2033 | Embedded System Design | 2 | 2 | 3 |
| 27 | ECE2006 | Computer Architecture and Organization | 3 | 0 | 3 |
| Specialized Electives Baskets - Minimum Credits to be earned from these baskets = | | | | | 18 |
| H. AI & ML Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | CSE3010 | AI & ML Applications | 2 | 2 | 3 |
| 2 | CSE3011 | Machine Learning Techniques | 2 | 2 | 3 |
| 3 | CSE3015 | Natural Language Processing | 2 | 2 | 3 |
| 4 | CSE3013 | Deep Neural Networks | 2 | 2 | 3 |
| 5 | CSE3012 | Optimization Techniques in Machine Learning | 3 | 0 | 3 |
| 6 | CSE3014 | Reinforcement Learning Techniques | 2 | 2 | 3 |
| 7 | CSE4005 | Industrial Applications of AI & ML | 3 | 0 | 3 |
| I. Signal Processing Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | ECE2026 | Artificial Intelligence for Signal Processing | 2 | 2 | 3 |
| 2 | ECE2027 | Image and Video Processing | 2 | 2 | 3 |
| 3 | ECE3018 | Speech Recognition and Natural Language Processing | 2 | 2 | 3 |
| 4 | ECE2028 | Biomedical Signal Processing | 2 | 2 | 3 |
| 5 | ECE3019 | Adaptive Signal Processing | 2 | 2 | 3 |
| 6 | ECE3020 | Multirate and non linear Signal Processing | 2 | 2 | 3 |
| 7 | ECE4003 | Industrial Applications of Signal Processing | 3 | 0 | 3 |
| J. Communication and Networking Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | ECE2029 | Satellite Communication | 2 | 2 | 3 |
| 2 | ECE3021 | Cognitive Radio Networks | 2 | 2 | 3 |
| 3 | ECE2030 | Wireless Sensor Network | 2 | 2 | 3 |
| 4 | ECE3022 | Advanced Radar Communication | 2 | 2 | 3 |
| 5 | ECE3024 | Optical wireless communication system | 2 | 2 | 3 |
| 6 | ECE3025 | Advanced MIMO for 5G and beyond | 2 | 2 | 3 |
| 7 | ECE4004 | Industrial Applications of Communication and Networking | 3 | 0 | 3 |
| K.VLSI & Embedded Systems Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | ECE3010 | FPGA and ASIC Design | 2 | 2 | 3 |
| 2 | ECE3011 | Low Power VLSI Design | 2 | 2 | 3 |
| 3 | ECE3012 | Scripting Languages and Verification | 2 | 2 | 3 |
| 4 | ECE3013 | Semiconductor Device Modelling | 2 | 2 | 3 |
| 5 | ECE3014 | CAD for IC Design | 2 | 2 | 3 |
| 6 | ECE3015 | VLSI Testing and Verification | 2 | 2 | 3 |
| 7 | ECE2024 | Embedded Network Protocols | 3 | 0 | 3 |
| 8 | ECE3016 | Machine Learning for Embedded Applications | 2 | 2 | 3 |
| 9 | ECE2025 | AUTOSAR and In-vehicle Networking | 3 | 0 | 3 |
| 10 | ECE3017 | System-on-a-Chip | 2 | 2 | 3 |
| 11 | ECE4007 | Industrial Applications of VLSI & Embedded Systems | 3 | 0 | 3 |
| L. IoT Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | ECE2004 | Sensor Technology, Embedded Systems and User Interface | 2 | 2 | 3 |
| 2 | ECE2002 | IoT Platforms and Application Development | 2 | 2 | 3 |
| 3 | CSE2031 | Wireless Communication in IoT | 3 | 0 | 3 |

| | | | | | |
|---|---------|-------------------------------------|---|---|-----------|
| 4 | ECE2001 | IoT Architecture and Protocols | 3 | 0 | 3 |
| 5 | CSE2032 | Mobile Application for IoT | 2 | 2 | 3 |
| 6 | CSE2033 | Cloud Computing for IoT | 3 | 0 | 3 |
| 7 | CSE2030 | Big Data Analytics for IoT | 2 | 2 | 3 |
| 8 | ECE2003 | Industrial Internet of Things | 3 | 0 | 3 |
| 9 | ECE2005 | Internet of Medical Things | 3 | 0 | 3 |
| M. Robotics Basket - Minimum Credits to be earned from this basket = | | | | | 3 |
| 1 | ECE5002 | Principles of Robotics and RoS | 2 | 2 | 3 |
| 2 | ECE2037 | Drone Technology | 2 | 2 | 3 |
| 3 | CSE5096 | Robotic Process Automation | 2 | 2 | 3 |
| 4 | CSE5099 | Robot Motion Planning | 2 | 2 | 3 |
| 5 | ECE5005 | Robot Kinematics | 2 | 2 | 3 |
| 6 | ECE3023 | Mechatronic System Design | 2 | 2 | 3 |
| 7 | CSE5098 | Computer Vision | 2 | 2 | 3 |
| 8 | ECE3026 | Building Robots | 0 | 6 | 3 |
| 9 | CSE3031 | Autonomous Mobile Robots | 2 | 2 | 3 |
| 10 | CSE3032 | Human-robot Interaction | 2 | 2 | 3 |
| 11 | CSE3033 | Microrobotics | 3 | 0 | 3 |
| 12 | CSE4004 | Industrial Applications of Robotics | 3 | 0 | 3 |
| Open Elective basket - Minimum Credits to be earned from this basket = | | | | | 18 |
| Any course from another 'eligible' curriculum | | | | | |
| Any unused Discipline Elective from his/ her 'own' curriculum | | | | | |
| Any stand-alone course declared as "Open Elective" by School/ Dept. for a specific 'eligible' degree program | | | | | |
| Any School approved NPTEL/ Swayam courses for a maximum of 6-credits | | | | | |